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EPO - DG 1

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New claims

- 1. A movement mechanism comprising a spherical holder (1) and a spherical bowl (2) which, one inserted into the other, are rotatable relative to each other about a first axis, the X-axis, and a second axis, the Y-axis, said axes lying in a plane coinciding with the plane of the outer edge of the holder (1) or extending parallel thereto, the movement mechanism further comprising a dish (3) located between the holder (1) and the bowl (2), said dish (3) being connected to the bowl (2) for rotation about the X-axis only and connected to the holder (1) for rotation about the Y-axis only, characterized in that fitted in the holder (1) there is provided an actuator (35), the actuator being operatively connected to the bowl (2) through openings (26, 27) in the holder (1) and an opening (20) in the dish (3) for rotating the holder (1) relative to the bowl (2) about the X- and Y-axis.
- 2. A movement mechanism according to claim 1, charaterized in that the holder (1) or the dish (3) is provided with diametrically opposite thickenings (6, 7) which, upon rotation of the dish (3) relative to the holder (1) about the X-axis, cooperate with relevant slots (4, 5) in the dish (3) or holder (1) respectively that extend in the direction of rotation.
- 3. A movement mechanism according to claim 1, characterized in that the dish (3) is provided with a thickening and a diametrically opposite slot that extends in the direction of rotation, said thickening and said slot, upon rotation of the dish (3) relative to the holder (1) about the X-axis, cooperating with a slot in the holder extending in the direction of rotation and diametrically opposite thickening on the holder (1) respectively.
- 4. A movement mechanism according to claim 2 or 3, characterized in that the holder has its outer surface provided with circularly curved edges (8, 8a)

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which, upon rotation of the dish (3) relative to the holder (1) about the X-axis, serve as guide edges for correspondingly shaped edges (9, 9a) provided on the dish (3).

- 5. A movement mechanism according to any one of the preceding claims, characterized in that the holder (1) is provided with an outwardly directed, circular edge (18) and the dish (3), viewed in a section perpendicular to the X-axis, is segment-shaped with an apex angle smaller than 180°, while in at least one extreme position of the dish (3) relative to the holder (1), a relevant ege half of the dish (3) abuts against the circular edge (18) of the holder (1).
- 6. A movement mechanism according to any one of the preceding claims, charaterized in that holder (1) has its outer surface provided with at least one edge against which, in an extreme position of the dish (3) relative to the holder (1), a corresponding edge of the dish (3) abuts.
- 7. A movement mechanism according to any one of the preceding claims, characterized in that the bowl (2) or the dish (3) is provided with diametrically opposite thickenings which, upon rotation of the dish (3) relative to the bowl (2) about the Y-axis, cooperate with relevant slots (10, 11) in the dish (3) or bowl (2) respectively that extend in the direction of rotation.
- 8. A movement mechanism according to any one of the preceding claims, characterized in that the bowl (2) is provided with a thickening and a diametrically opposite slot extending in the direction of rotation, said thickening and said slot, upon rotation of the dish relative to the bowl (2) about the Y-axis, cooperating with a and a diametrically opposite thickening on the dish (3) respectively.
- 9. A movement mechanism according to claim 7 or 8, charaterized in that the bowl (2) is provided with circularly curved edges (14) which, upon rotation of the dish (3) relative to the bowl (2) about the Y-axis, serve as guide edges for correspondingly shaped edges (15) provided on the dish (3).
- 10. A movement mechanism according to any one of the preceding claims, charaterized in that the holder (1) is provided with an outwardly directed,

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circular edge (18), while in at least one extreme position of the bowl (2) relative to the dish (3), an edge of the bowl (2) abuts against the circular edge (18) of the holder (1).

- 11. A movement mechanism according to any one of claims 7-9, charaterized in that in an extreme rotary position of the dish (3) relative to the bowl (2), the thickenings (12, 13) for rotation and securement of the dish relative to the bowl (2) are located against an end edge of the slots (10, 11).
- 12. A movement mechanism according to any one of the preceding claims, characterized in that additional locking means (16) are provided between the dish (3) and the holder (1) and between the dish (3) and the bowl (2), for blocking a rotation of the bowl (2), dish (3) and holder (1) relative to each other about an axis, the Z-axis, perpendicular to the X-axis and the Y-axis.
- 13. A movement mechanism according to any one of the preceding claims, charaterized in that the dish (3) is on both sides provided with outwardly set lips (40), to provide a defined friction between the bowl (2) and the dish (3) and between the dish (3) and the holder (1).
- 14. A movement mechanism according to any one of the preceding claims, characterized in that the holder (1), the bowl (2) and the dish (3) are manufactured from plastic.
- 15. A movement mechanism according to any one of the preceding claims, characterized in that the holder (1) and the bowl (2) are manufactured from plastic and the dish (3) is substantially manufactured from metal.
- 16. A movement mechanism according to claim 15, charaterized in that the dish (3) is punched from metal.
- 17. A movement mechanism according to claim 15 or 16, characterized in that the dish (3) is provided with metal springs for realizing a defined friction between the bowl (2) and the dish (3) and between the dish (3) and the holder (1).
- 18. A movement mechanism according to any one of the preceding claims, characterized in that the holder (1), viewed in the X-Y plane, comprises two



mutually perpendicular slots (26, 27) provided through the holder (1), each of said slots (26, 27). having an adjusting element (30) being further freely movable in the bowl (2) in a direction, viewed in the X-freely movable bowl (2) in a direction, viewed in the X-Y plane, perpendicular to the direction of the relevant slot (26, 27) in the holder (1), wherein, further, the adjusting element (30) engages, through the relevant slot (26, 27) in the holder (1), a dirve mechanism placed in the holder (1), said drive mechanism being connected to a motor that is likewise placed in the holder (1).

- 19. A movement mechanism according to claim 18, characterized in that on the holder (1), an adjusting plate (33) for, for instance, a mirror (34) is secured, and that the holder (1) with the components fitted therein and secured thereon can be snapped into the bowl (2) as a unit.
- 20. A movement mechanism according to claim 19, charaterized in that the holder (1) comprises an electric plug terminal (36), while on the adjusting plate (33), a separate electric terminal (38) is present for an electric connection to the plug terminal (36) on the holder (1).
- 21. A wing mirror for a vehicle, comprising a movement mechanism according to any one of the preceding claims.